

Project

- Hold two different size spheres in your hand and predict which is heavier.
- Then weigh each sphere and determine which is actually heavier.
- Was your prediction correct? If not, why do you think you got it wrong?

Lesson #48
Topic: Pressure

1/17/07

Objectives: (After this class I will be able to)

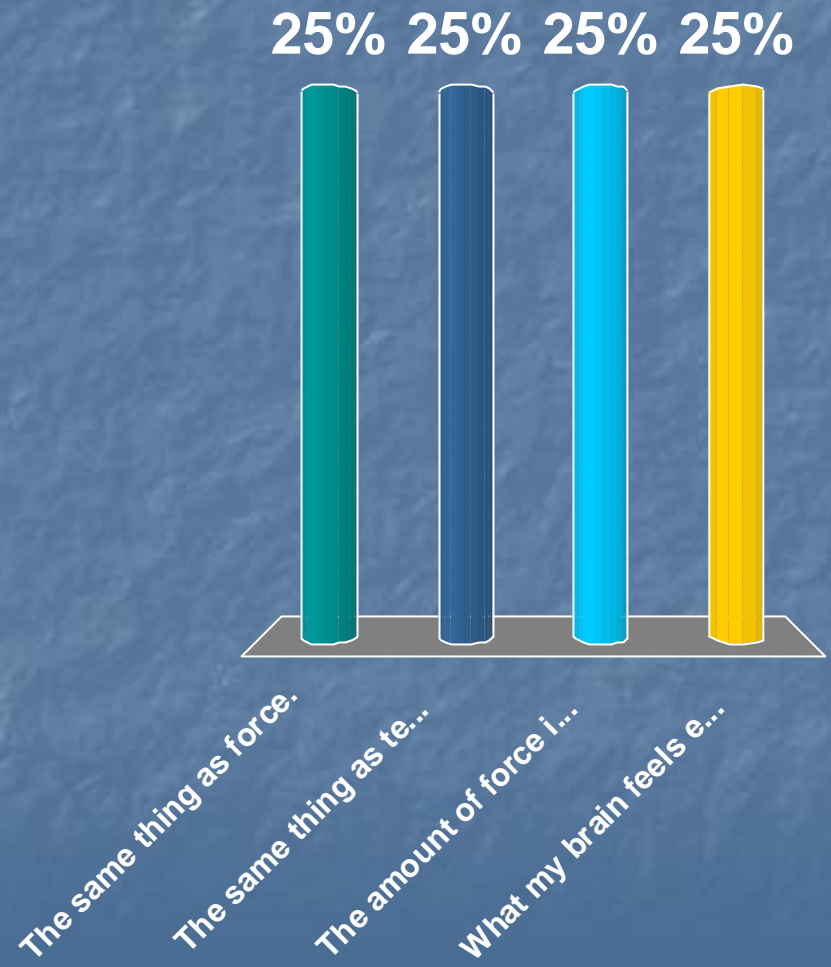
1. Define Pressure.
2. Describe the difference between force and pressure.

Warm Up: What is pressure?

Assignment: Practice Pressure Problems

What is pressure?

1. The same thing as force.
2. The same thing as tension.
3. The amount of force in a given area.
4. What my brain feels every time I enter this classroom.



Pressure

- Pressure is defined as Force per Area.

$$P = \frac{F}{A}$$

- Pressure has units of N/m² we call this a Pascal (Pa).
- Examples:
- The steel ball exerts more pressure than the tennis ball, even though the tennis ball is heavier.
- Does a scale read more weight when you stand on one foot or two?

Pressure Practice

1. A full coffee mug has a mass of 0.6kg and an empty mug has a mass of 0.3kg.
 - a) Which mug, the full one or the empty one, applies a greater pressure on the table?
 - b) If the full mug applies a pressure of 1200N/m^2 , what is the area of the bottom of the mug?
 - c) What is the radius of the coffee mug?

Pressure Practice

2. Two women walk across an open grass field. Each woman has a mass of 60kg but Miss Culp is wearing spike heels that have an area of 0.4cm^2 while Miss Vance wears wide heels with an area of 6cm^2 .
- a) Calculate how much pressure each woman will apply on the ground.
- b) What can Miss Culp do to help her sink less into the ground?

Pressure Practice

3. A 0.5kg spherical water balloon is sitting on the kitchen table. The bottom of the balloon flattens until the pressure on the bottom is reduced to 630 N/m^2 .
- a) What is the area of the flat spot on the bottom of the balloon?
 - b) What is the radius of the flat spot?

Hewitt Pressure Video

1. Is the earth's atmosphere thick or thin?
2. What is the atmospheric pressure at sea level?
3. Is the can being sucked in or pushed in?
4. Why doesn't the plunger come off the chair?
5. What are the 2 ways Hewitt blows up the balloon?
6. What is the physics behind drinking out of a straw?
7. Why does the jar stick to Hewitt's head?
8. Why do the cans go together?
9. Why does the ping pong ball stick to the stream of water?
10. What is the answer to the question about the boat and the pier?